

21 36. A method of claim ³⁵35 and further comprising cooling at least the encapsulating portion of the delivery catheter distal portion after heating.

22 37. A method of claim ³⁵35 and further comprising providing a balloon on the delivery catheter distal portion and wherein placing the stent on the delivery catheter distal portion includes pressurizing the balloon.

23 38. A method of claim ³⁵35 wherein placing the stent on the delivery catheter distal portion includes compressing the stent onto the delivery catheter distal portion.

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(cont.) 24 39. A method of claim ³⁵35 wherein placing the stent on the delivery catheter distal portion includes placing a sheath over the stent and over the encapsulating portion of the delivery catheter distal portion.

25 40. A method of claim ³⁹39 wherein the sheath compresses the stent onto the delivery catheter distal portion.

26 41. A method of forming a stent delivery system for implanting a stent within a vessel, the method comprising:

providing a delivery catheter having a distal portion;

providing a balloon on the delivery catheter distal portion;

placing a stent on the balloon whereby a portion of the balloon encapsulates at least a portion of the stent; and

heating the portion of balloon that encapsulates at least the portion of the stent.

27 42. A method of claim ⁴¹41 and further comprising cooling the heated portion of the balloon.

28 43. A method of claim ⁴¹41 wherein placing the stent includes pressurizing the balloon.

29 44. A method of claim ⁴¹41 wherein placing the stent includes compressing the stent onto the balloon.

30 45. A method of claim ⁴¹41 wherein placing the stent includes placing a sheath over the stent and the balloon.

31 46. A method of claim ⁴⁵45 wherein placing the sheath includes compressing the stent onto the balloon.

32 ~~47~~²⁶ A method of claim ~~45~~²⁶ wherein placing the stent includes pressurizing the balloon after placing the sheath over the stent and the balloon.

37 ~~48~~ A method for making a stent delivery catheter, the method comprising:

providing a catheter having an expandable balloon portion at a distal end of the catheter;

providing an expandable stent;

placing the expandable stent on the expandable balloon portion so that the expandable stent contacts the expandable balloon portion with at least a portion of the expandable balloon portion encapsulating at least a portion of the expandable stent;

heating the expandable balloon portion encapsulating the portion of the expandable stent; and

cooling the expandable balloon portion encapsulating the expandable stent thereby to set the shape of the expandable balloon portion.

34 ~~49~~³⁵ A method of claim ~~48~~³⁵ wherein placing the expandable stent onto the expandable balloon portion includes applying internal pressure to the expandable balloon portion.

35 ~~50~~³⁴ A method of claim ~~49~~³⁴ wherein placing the expandable stent onto the expandable balloon portion includes applying a sheath around the expandable stent on the expandable balloon portion.

36 ~~51~~³⁵ A method of claim ~~50~~³⁵ wherein placing the expandable stent onto the expandable balloon portion includes applying internal pressure to the expandable balloon portion.